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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,765

12/28/2005

Christian Goldstein

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MCGLEW & TUTTLE, PC
P.O. BOX 9227
SCARBOROUGH STATION
SCARBOROUGH, NY 10510-9227

EXAMINER

D'ANIELLO, NICHOLAS P

ART UNIT

PAPER NUMBER

4111

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DELIVERY MODE

01/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,765	Applicant(s) GOLDSTEIN ET AL.	
	Examiner Nicholas P. D'Aniello	Art Unit 4111	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/31/2006 and 12/28/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al. (US Patent No. 3,998,373).

Jones et al. teach a length compensator for friction welding where the parts to welded (14, 16) are first placed in a measuring jig (18, in order to measure them) and uses a linear variable displacement transducer (LVDT, 24) which measures the possible length deviation (ΔL) from a set value of the work pieces (14, 16) (column 2 line 56 – column 3 line 23, see claims 1 and 2). The LVDT creates a deviation signal (ΔL) which has to be multiplied by a proportionality factor (taken to be a correction factor, C) before it can properly be applied. This value is then used to change a set value of one of the processing parameters such as the speed (number of RPMs) or the friction length (upset, figure 3) (column 8, lines 33-44, see claims 1 and 2).

In regard to **claim 2 and 4**, Jones et al. determines the correction factor (C) during operation empirically by taking live test data by making a series of welds at different weld speeds to produce a graph (column 8 line 58 - column 9 line 19) where each series is “application specific” for the specific nominal length.

Regarding claim 3, since a correction factor is dependent on a characteristic of a work piece, then it must be determined by an application dependent manner.

Regarding **claim 5**, Jones et al. teach the nominal length control is used to set the minimum combined length for the parts 14, 16 with which a satisfactory weld can be effected. This in turn relates the welding quality to the determination of the correction factor. The system is also designed to with an undersize rejection relay 56 which can mechanically reject the part based on quality (column 3 lines 41-54).

In regard to **claim 6**, as stated earlier, Jones et al. teach that the nominal length control is used to set the minimum combined length for the parts 14, 16 with which a satisfactory weld can be effected (column 3 lines 41-54). Further, it can be seen in Figure 3 that the weight factor (correction factor) is determined by dividing the delta RPM (maximum speed minus minimum speed) by the delta upset (maximum upset minus minimum upset). Because the upset is comparable to the length deviation, determining the maximum and minimum length deviation is taken to be embraced. The correction factors are stored in an analog memory means and conveyed to the welding machine (column 2, lines 11-35). The correction factor can also be determined by interpolation through examination of the Figure 3.

In regard to **claim 7**, as stated earlier, the LVDT creates a deviation signal (ΔL) which has to be multiplied by a proportionality factor (correction factor, C) before it can properly be applied. This value is then used to change a set value of one

of the processing parameters such as the number of RPMs or the friction length (upset, figure 3) (column 8, lines 33-44).

In regard to **claim 11**, in Figure 3 Jones et al. shows the varying profile of the processing parameter (speed in RPM) against space (upset in mm).

In regard to **claim 12**, Jones et al. teaches that the device has an analog memory means for asynchronously storing measured length information and digital sequencing means for conveying this information to the welding machine in order in which it was stored (column 2, lines 11-35).

In regard to independent **claim 13**, Jones et al. discloses an apparatus for the friction welding of work pieces according to the preamble of claim 13. Jones et al. discloses that the friction welding apparatus has a measuring device (24) for determining the actual length of both work pieces (14, 16) and a length deviation (figure 1), a desired value of a process parameter, i.e. friction path, being variable in the controller (28, 34, 10) in the event of a length deviation, the controller (10, 28, 34) having a computing unit (10) for setting and changing desired values (requiring a feed unit) while taking into account a correction factor for the process parameter, i.e. friction path (column 3, lines 3-66; column 8, line 33 - column 9, line 19; table 1; claims).

Regarding **claim 14**, as discussed previously, Jones et al. teaches a LVDT for determining the correction factors and an analog memory means for storing the calculated correction factors. The control unit of Jones et al. is taken to be programmable as this is the only way to accommodate different conditions.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. (US Patent No. 3,998,373) as applied to claim 1 above.

In regard to claims 8 and 9, Jones et al. teach a process in accordance with claim 1. Claims 8 and 9 differ from Jones et al. in calling for the friction duration or forge stroke to be modified by the correction factor; however it would have been obvious to calculate the friction duration or forge stroke in the process of Jones et al. by taking the product of a correction factor and the length deviation because Jones et al. teaches a method of modifying a welding parameter using a correction factor and the upset (length deviation); where there is a limited number of processing parameters that could be calculated in such a manner, it would be conventional procedure for a person skilled in the art to choose an alternative parameter for friction welding such as the friction duration or forge stroke duration. None, but only the expected result of compensating deviation signal (ΔL) during a welding operation would have been achieved.

In regard to claim 10, Jones et al. teach a process in accordance with claim 1.

Claim 10 differs from the Jones et al. in calling for the forge force to be changed;

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where Jones et al. is silent regarding changing the force. However, it would have been obvious in the art that the force would be changed according to material and geometry of the work piece in order to compensate for geometrical change of the work piece.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas P. D'Aniello whose telephone number is (571)270-3635. The examiner can normally be reached on Monday through Thursday from 8am to 5pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Chuan Yao can be reached on (571) 272-1224. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1/10/2008

/Sam Chuan C. Yao/
Supervisory Patent Examiner, Art Unit 4111